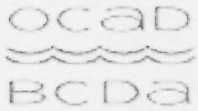
OFFICE OF THE COMMISSIONER FOR AQUACULTURE DEVELOPMENT



"TOWARD AN APPROPRIATE FEDERAL ROLE IN AQUACULTURE"

Results of the Ontario Stakeholder Workshops

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Office of the Commissioner for Aquaculture Development

Canada

TOWARD AN APPROPRIATE FEDERAL ROLE IN AQUACULTURE
OFFICE OF THE COMMISSIONER FOR AQUACULTURE DEVELOPMENT
Report on the Stakeholder Workshops
Ontario – July 10 & 11, 2002

The Office of the Commissioner for Aquaculture Development (OCAD) has been directed by the Minister of Fisheries and Oceans to focus efforts upon measures that will lead to full implementation of the 1995 Federal Aquaculture Development Strategy. A key component of this mandate is the creation of a consolidated long-term strategic vision for aquaculture development in Canada and defining a renewed federal role to implement this vision.

Within this context, OCAD organized eleven regional workshops with industry, government and other stakeholders to solicit the views of those groups most directly involved with aquaculture development in Canada. In each region (excepting the Prairie meeting[1]), sessions were organized separately with (1) industry and other stakeholders and (2) government representatives. As a result of this exercise, perspectives on the fundamental elements for successful development of the aquaculture sector in Canada have been compiled, including identification of those groups responsible for delivering each of the fundamental elements. An **element** is defined as a high-level component of the vision that, ultimately, will require strategic focus for further implementation.

At each workshop, an identical process was followed, as outlined below:

- Presentation of background information pertaining to OCAD's mandate
- Consideration of the "Vision Question"
- Brainstorming
- Identification of fundamental elements
- Prioritization exercises
  - Gap Analysis
  - Relational Analysis
  - Resource Allocation

The "Vision Question"

It is 2017 and Canada has grown to realize its potential in aquaculture, a locus of investment that is well-regarded as an environmentally sustainable source of wholesome seafood that provides employment for coastal and rural communities and economic benefits to the Canadian economy in a business climate that is free of public criticism. How did we get to this point?

This report provides interim results from the Ontario regional workshops, held on July 10 and 11, 2002. Annex III includes the list of participants to the workshop, and annex I and II provide a transcription of the elements identified in these sessions. These results reflect the views and opinions of the individuals who participated in the sessions; however, they do not necessarily reflect the perspective of any organizations or associations to which these individuals belong. An analysis of the overall exercise will be available shortly through OCAD's website: http://ocad-bcda.gc.ca

[1] The Prairie workshop consisted of one session between aquaculture industry representatives, other stakeholders and the federal and provincial government representatives.

PRELIMINARY FINDINGS

1. IDENTIFICATION OF ELEMENTS & GAP ANALYSIS

Nine (9) elements were identified in both the Industry and other stakeholders' workshop, and the government representatives' workshop. These elements, and their definition, are presented in Tables 1 and 2. For each element, a score is presented to reflect the collective view of the workshop delegates with respect to the current level of progress in relation to its full implementation. The percentage scores reflect the following scale: 0% - No Implementation; 25% - Falling Behind with Implementation; 50% - Neither Gaining nor Falling Behind; 75% - Moving Forward with Implementation; 100% - Full Implementation.

Table 1: Elements & Gap Analysis - Industry & Other Stakeholders

Legal / Regulatory Environment 6%	• Harmonized, transparent and streamlined regulatory & policy approach. • Ownership and private property rights & responsibilities including First Nations. • Clarification (definition) or change of federal / provincial lead agency roles.
Environmental Sustainability 58%	• Effective research, development, monitoring and incentive programs in support of an integrated watershed and coastal zone management approach to maintaining ecosystem integrity and balancing human values.
R&D 42%	• Planned and cooperative approach to R&D in support of industry productivity and sustainability (environmental, economic, cultural).
Public Relations/ Communications 22%	• Responsive communications program to provide public assurance regarding env. sust., food safety / quality / wholesomeness & regulatory compliance.
Marketing 38%	• Enhanced utilization of the whole fish & by-products by reducing waste enhancing productivity. Generating market appreciation of the quality and value of Canadian aquaculture products.

Table 2: Elements & Gap Analysis – Governments

Policy & Regulatory 30%	• Harmonization / co-ordination / streamlining of more appropriate and specific policies, regulations and standards for aquaculture.
Environmental Sustainability 28%	• Enhanced sustainability of aquaculture
R&D and Technology Transfer 39%	• In support of enhanced industry productivity and environmental sustainability
Communications 35%	• Stakeholder communications. • Public awareness. • Media scanning.
Marketing 15%	• Development and promotion of brand image to support enhanced consumption and integrity of aquaculture products, including traceability. • Market research.

Financial / Investment 16%	• Attractive economic and regulatory business environment for investment, including recognition of the advantages of small and medium-size ventures. • A level-playing field and farm safety programs.	Financing 27%	• Facilitated access to capital and agricultural funding.
Industry Organization 19%	• Self-sustaining and inclusive industry organization.	Partnerships 45%	• Enhanced partnership and cooperation among stakeholders in the sector.
Attitude 19%	• Government attitude and culture regarding aquaculture	Food Safety 48%	• Development of systems to provide consumer and regulatory assurances re food safety.
Economics / Productivity 40%	• Industry competitiveness and diversification.	Land Use & Planning 27%	• Planned and coordinated approach to resource use.

2. RELATIONAL ANALYSIS (Drivers & Dependents).

This exercise served to define a cause-and-effect relationship between strategic elements. "Drivers" are those elements which, if implemented, will have an effect upon the implementation of other "dependent" elements. A very high score means that the element is a driver (DR), while a very low score means that it is dependent (DP). This does not mean that a dependent element is not important. It does, however, suggest that if two elements are identified as having a similar priority, it would be wise to consider the leveraged influence of the driver on other elements. Tables 3 and 4 present the results from the relational analysis exercise.

Table 3: Relational Analysis - Industry & Other Stakeholders

ELEMENT	RANK
Legal / Regulatory Environment	8 DR
Environmental Sustainability	6
R&D	5
Public Relations/Communications	7
Marketing	2 DP
Financial / Investment	3 DP
Industry Organization	4
Attitude	9 DR
Economics / Productivity	1 DP

Table 4: Relational Analysis – Governments stakeholders

ELEMENT	RANK
Policy & Regulatory	9 DR
Environmental Sustainability	3 DP
R&D and Tech. Transfer	8 DR
Communications	6
Marketing	1 DP
Financing	2 DP
Partnerships	7
Food Safety	5
Land Use & Planning	4

3. RESOURCE ALLOCATION

In the resource allocation exercise, each delegate was provided with approximately 50% more resources than the number of elements. For example, if 10 elements were identified, each delegate was provided with 15 resources. The resources represented public sector resources including tax dollars, civil servants and time. Delegates were asked to allocate their resources to those elements that they deemed to be most requiring attention. All of the resources could be allocated to a single element or they could be spread amongst several or all elements. Results, expressed as the percentage of the total number of resources allocated for each element, are presented in Tables 5 and 6.

Table 5: Prioritization – Industry & Other Stakeholders

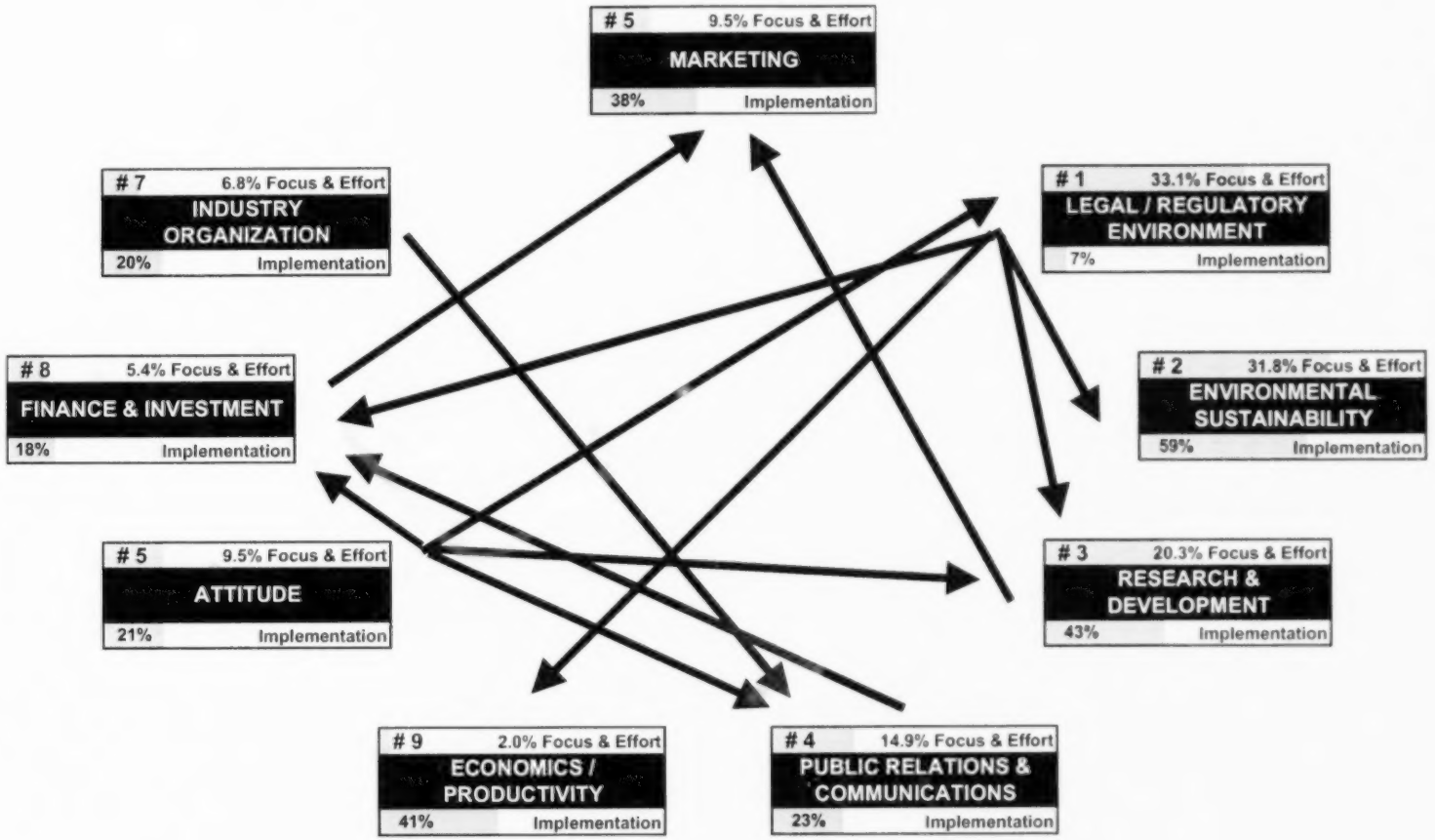
ELEMENT	SCORE
Legal / Regulatory Environment	33.1 %
Environmental Sustainability	31.8 %
R&D	20.3 %
Public Relations/Communications	14.9 %
Marketing	9.5 %
Financial / Investment	5.4 %
Industry Organization	6.8 %
Attitude	9.5 %
Economics / Productivity	2.0 %
TOTAL	100%

Table 6: Prioritization - Governments

ELEMENT	SCORE
Environmental Sustainability	27.7 %
R&D and Tech. Transfer	20.2 %
Policy & Regulatory	17.9 %
Land Use & Planning	7.6 %
Food Safety	6.7 %
Financing	6.5 %
Marketing	4.6 %
Partnerships	4.6 %
Communications	4.2 %
TOTAL	100%

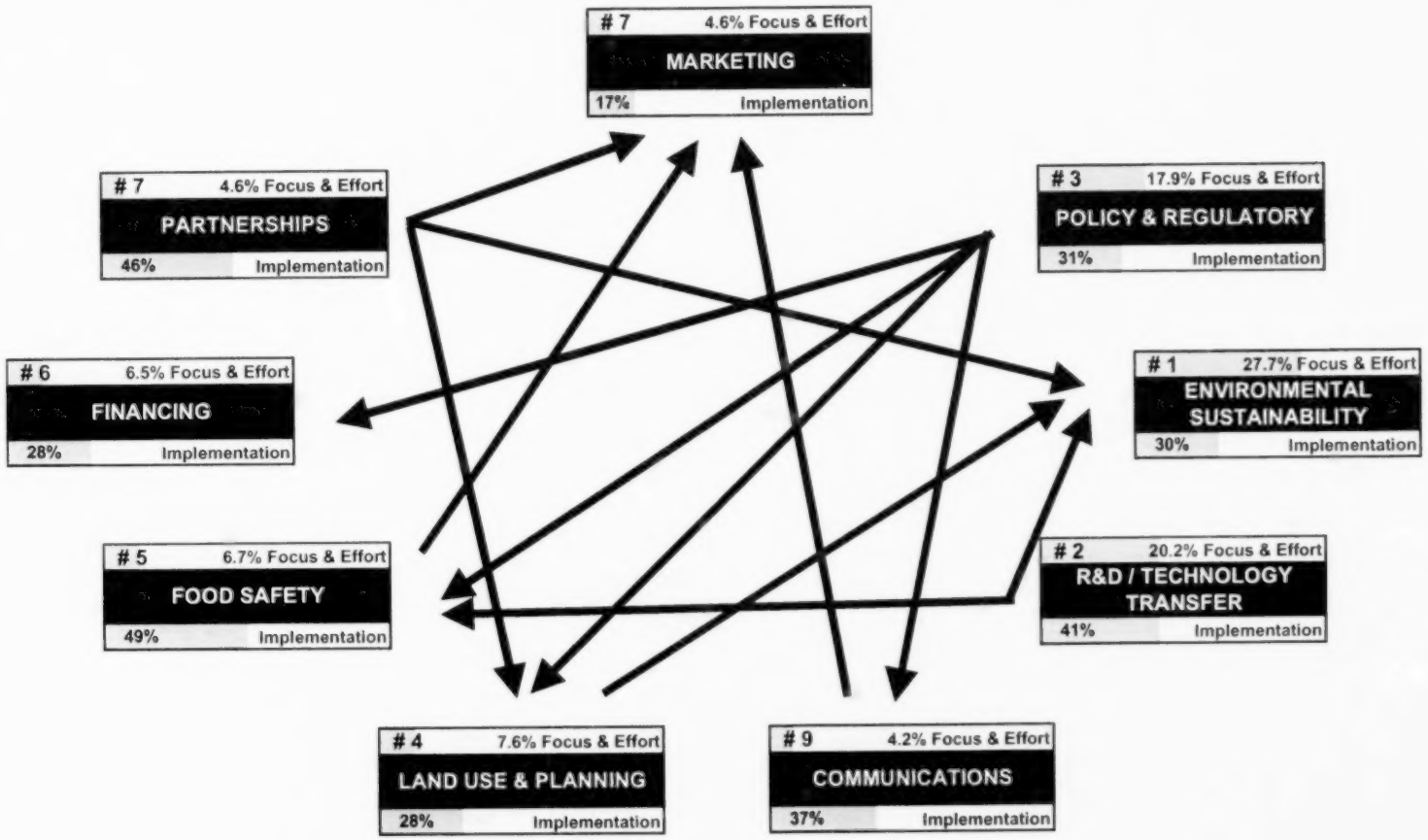
Summary Table 1.

This table is a graphic representation of the nine elements identified in the Ontario industry and other stakeholders meeting, along with the results of each exercise (gaps analysis, relational analysis, and resource allocation).



Summary Table 2.

This table is a graphic representation of the nine elements identified in the Ontario government stakeholders meeting, along with the results of each exercise (gaps analysis, relational analysis, and resource allocation).



ANNEX I. REGIONAL AQUACULTURE STAKEHOLDER WORKSHOPS
INDUSTRY AND OTHER STAKEHOLDERS' PERSPECTIVES
Ontario (Parry Sound, ON) - July 10, 2002

The following represents the comments of individual participants attending at the workshop. It does not necessarily reflect consensus or agreement among the participants.

ELEMENTS & INITIATIVES (Transcription from Post-It notes)

1. ENVIRONMENTAL SUSTAINABILITY – Effective research, development, monitoring and incentive programs in support of an integrated watershed and coastal zone management approach to maintaining ecosystem integrity and balancing human values.

Federal Initiatives
The federal government has:

- Adopted coastal zone management in Ontario to permit alternate site management strategies.
- Recognized mass nutrient loading assimilative capacity of Great Lakes environments.

Provincial Initiatives
The provincial government has:

- Established an environmental division to address all issues pertaining to aquaculture development (OMAFRA)
- Provided incentives for waste treatment.
- Recognized mass nutrient loading assimilative capacity of Great Lakes environments.
- Adopted a receiving water based (loading) approach to licensing versus an "end of pipe" concentration approach.
- Accepted common standards of monitoring (for environmental conditions) to satisfy all stakeholders.
- Adopted a more rapid / shorter timeline for regulatory review and changes.
- Recognized the broad spectrum of impact sources on the environment beyond fish farm sites.
- Provided incentives for land-based aquaculture development.
- Undertaken R&D for waste treatment.
- Effective monitoring techniques for water quality.
- Aquaculture operation siting has been reconciled with compatible / incompatible resource uses (ecotourism, boating, cottage recreation, etc.) – zoning concepts re commercial / industrial uses, capacity determination, municipal official plans, how much? Where? When?
- Addressed GBA / local resident associations' concerns re aquaculture vision competing with other visions for specific locations.

Industry Initiatives
The industry has:

- Taken responsibility for damage and rehabilitation.
- Adopted environmental codes of practice (best management practices).
- Effective monitoring techniques for water quality.

Other Initiatives
Other groups have:

- Adequately addressed concerns regarding fish disease / parasite problems affecting natural fish populations.
- Accepted the use of antibiotics and other commercial chemicals and drugs in open aquatic systems as environmentally acceptable.
- Demonstrated environmental sustainability of aquaculture operations and aquatic ecosystem integrity in adjacent waters.

- Demonstrated that aquaculture operations have no measurable or cumulative negative effect on water quality
- Enforced regulatory standards re water quality compliance – self-regulation by industry vs. MOE role.
- Eliminated loss of caged fish to the environment
- Accepted a procedure in the Great Lakes for identifying number and siting of new facilities.

2. LEGAL /REGULATORY ENVIRONMENT – Harmonized, transparent and streamlined regulatory and policy approach. Ownership and private property rights and responsibilities including First Nations. Clarification (definition) or change of federal / provincial lead agency roles.

Federal Initiatives

The federal government has:

- More rapid / shorter timelines for regulatory review and changes
- Eliminated regional subsidization
- Leveled playing field
- Money available for viable business developments.
- Moved the jurisdictional and advocacy role for aquaculture from DFO to Agriculture Canada.
- Given Agriculture Canada the co-ordination of concerns and responsibilities for all federal agencies (e.g. DFO) as applies to aquaculture.
- Bureaucratic accountability and professionalism.
- Worked with industry to develop best management practices: This is accepted by all stakeholders and promoted by government.
- Treated aquaculture equitably with other sectors, same rules, etc: e.g. concern about Atlantic Salmon introductions in BC by farms, but ignoring actual introduction of Brown Trout by sport fishing.
- Recognized the importance of the veterinary profession in fish health, and a veterinarian now is responsible for aquaculture fish health matters for the federal government. DFO is responsible only for wild fisheries matters.
- Created an aquaculture ministry.
- Streamlined site approval.

Provincial Initiatives

The provincial government has:

- For licensing requirements: a known, stable, standard protocol for license - new or renewed (i.e. like a driver's license); no moving targets; removed volatility & subjectivity of interpretation.
- Extended site tenure (lease) to at least 21 yr.
- Eliminated regional subsidization
- Leveled playing field
- Money available for viable business developments.
- Undertaken to give responsibility for and the advocacy role for aquaculture to OMAFRA. OMAFRA now remits farm sites, etc., and co-ordinates the concerns of other ministry and agencies (e.g. OMNR, OMOEE).
- Implemented policies and regulations that are consistent and allow industry to grow (Ministry of Natural Resources).
- Bureaucratic accountability and professionalism. It has got away from "it doesn't matter what the law says we can bully you if we want" attitude.
- Made OMAFRA the lead agency. It advocates.
- Aquaculture is treated equitably with other sectors, no special rules for farms. Put our rules in context of real world e.g. introductions, disease and baitfish).
- OMAFRA surveyed the province and identified sites approved for aquaculture (cage culture, land-based). A method for assigning sites was determined with various supporting and accountability standards.
- Recognized that aquaculture is a legitimate user of the resource with inherent rights. Fair and equal access.

- Made available long-term lease or tenure of Crown land for aquaculture.
- Established "enabling" zones reserved or preferred for aquaculture. This means restricting encroachment from other users.
- Coordinated and harmonized their regulatory process with the guidelines set by the federal government.
- Streamlined site approval.
- OMAFRA as the lead agency for aquaculture

Industry Initiatives
The industry has:
- Acquired true rights and ownership of their fish (farmers)
- Willingly completed all required record keeping and submitted all required reports. i.e. Ab has retired.
- With all stakeholders involved, changed Game and Fish Act, and developed best management practices.
- Guidelines for security of land-based fish farms.
- Co-operated with government agencies, under the leadership of OMAFRA, to develop environmental standards for aquaculture and accountable monitoring programs with steps for site remediation if required.

Other Initiatives
Other groups have:
- Clarified the roles and rights of the First Nations in aquaculture industry.
- Environmental organizations have been reassured that the industry has achieved regulatory control and environmental sustainability to their level of satisfaction.
- Consistent municipal (sewer use) by-laws with monitoring / enforcement for food processors -- involves provincial agencies as well.

3. MARKETING – Enhanced utilization of the whole fish and by-products by reducing waste and enhancing productivity. Generating market appreciation of the quality and value of Canadian aquaculture products.

Industry Initiatives
The industry has:
- Traceability
- Industry programs to raise consumer awareness re safety, health and nutrition of aquaculture products.
- Made Canadian farmed fish recognized as a preferred high-quality product by the North American consumer.
- Created a stable market with a known profit margin for the producers

Other Initiatives
Other groups have:
- Private enterprise developed, with the support of the industry, viable processing by-products for value-added.

4. FINANCIAL / INVESTMENT – Attractive economic and regulatory business environment for investment, including recognition of the advantages of small and medium-size ventures. A level-playing field and farm safety programs.

Federal Initiatives
The federal government has:
- Implemented farm programs similar to other programs such as crop insurance, etc.
- Developed financial programs to support the growth of the industry in Ontario.
- Leveled the playing field between North and South Ontario
- Provided farmers with access to financial safety nets, but it is not a subsidization program.:

- integrated marketing strategies

Provincial Initiatives
The provincial government has:
- Provided on-going operational financial support for the associations that represent the industry e.g. OAA, NOAA.
- Provided farmers with access to financial safety nets, but it is not a subsidization program.
- integrated marketing strategies

Industry Initiatives
The industry has:
- Resisted foreign ownership and take-over by multi-nationals by promotion of small and medium sized enterprises.
- Confidence in the unified / harmonized directions of federal / provincial govt. and responded by additional investment in the growth of the industry.
- Attracted investment – sound business – good economic returns (due to regulatory environment that allowed expansion).
- Farmers have access to regular financing options with financial institutions.
- integrated marketing strategies

5. **PUBLIC RELATIONS/COMMUNICATION** – Responsive communications program to provide public assurance regarding environmental sustainability, food safety / quality / wholesomeness and regulatory compliance.

Federal Initiatives
The federal government has:
- DFO has educational programs and public relations programs to support the development of the industry and respond to environmental concerns.
- Became aggressively involved in promoting, advocating and supporting the aquaculture industry.
- Through CFIA, reinforced public perception that aquaculture products are safe and wholesome.

Provincial Initiatives
The provincial government has:
- Taken responsibility for reporting to the public environmental compliance of the aquaculture industry.
- Educational programs.

Industry Initiatives
The industry has:
- Built up a positive rapport with local governments and its representatives.
- Public disclosure of feed ingredients.
- Public education.

Other Initiatives
Other groups have:
- NGOs adopted objective, scientifically based decision-making.
- (Local governments) became knowledgeable about the aquaculture industry, and were able to respond to concerns.
- Government is regarded as an 'Honest Broker' of information with respect to aquaculture and it's impacts (both positive and negative).

6. **ECONOMICS / PRODUCTIVITY** – Industry competitiveness and diversification.

Industry Initiatives
The industry has:

- Consolidated (3-4 major play) economies of scale. Production, efficiencies.
- Implemented recreational and food production of warm water species. Task force including all stakeholders.
- Enhanced and improved feeds.

7. **R&D** – Planned and cooperative approach to R&D in support of industry productivity and sustainability (environmental, economic, cultural).

Federal Initiatives
The federal government has:

- Shared best practices and new technologies than with the global aquaculture industry.
- Undertaken to promote the development of new pharmaceuticals for aquaculture, and is independently testing the safety and pharmacokinetics of existing therapeutants not yet approved for use in fish.
- Provided access to more freshwater therapeutants / vaccines

Provincial Initiatives
The provincial government has:

- R&D for feed enhancement / improvement.
- Support R&D: i.e. Alma, U of Guelph, other. new species, nutrition, genetics etc. Technology transfer to industry.
- Spearheaded research programs to address the needs of the industry.
- Developed programs to utilize nutrients from cage and fish operations. I.e. whitefish, lake herring. It has worked with the industry.
- Provided farmers with access to technical and scientific support for day-to-day farm operations.

Industry Initiatives
The industry has:

- Feed companies continue to improve diet formulations.

Other Initiatives
Other groups have:

- Private stakeholder has provided direct access to technical and scientific support for day-to-day farm operations. This needs to be experienced, knowledgeable support.
- Feed companies have spearheaded research efforts to develop the most environmentally friendly products.
- R&D facilities have been sensitive to the needs of the industry.
- The research facilities (i.e. universities) have generated adequate studies to respond to concerns about food safety in the aquaculture industry.

8. **ATTITUDE** – Government attitude and culture regarding aquaculture

Provincial Initiatives
The provincial government has:

- Regulatory agencies are supportive of industry, not confrontational.
- Adopted a growth philosophy for industry at all levels within the agency.
- OMAFRA / OMNR have established an aquaculture Implementation Committee that has successfully implemented the FAS by working with the OAA.

9. INDUSTRY ORGANIZATION – Self-sustaining and inclusive industry organization.

Industry Initiatives

The industry has:

- OAA is self-supported through membership, license fee from MNR – DFO represents and support the sectors: food, recreational, fish enhancement.
- A self-funded Industry association.

ANNEX II. REGIONAL AQUACULTURE STAKEHOLDER WORKSHOPS
GOVERNMENT DELEGATE PERSPECTIVES
Ontario (Burlington, ON) - July 11, 2002

The following represents the comments of individual participants attending at the workshop. It does not necessarily reflect consensus or agreement among the participants.

ELEMENTS & INITIATIVES (Transcription from Post-It notes)

1. COMMUNICATION – Stakeholder communications. Public awareness. Media scanning.

Federal Initiatives
The federal government has:
- Created a committee / team to review scientific articles & media reports related to aquaculture industry (panel of experts).

Provincial Initiatives
The provincial government has:
- Created a committee/team to review scientific articles and media reports related to aquaculture industry (panel of experts).
- Ensured that the Ontario public and NGOs have a clear understanding that freshwater aquaculture is environmentally sustainable (through extensive outreach and communication programs and by filling research gaps).

Industry Initiatives
The industry has:
- Created a committee / team to review scientific articles & media reports related to aquaculture industry (panel of experts).
- CAIA created a 1-800 service for responding to general inquiries about aquaculture. It also has a web service.
- Developed effective communication with stakeholders.

Other Initiatives
Other groups have:
- (Consumer groups, academia) created a committee / team to review scientific articles and media reports related to aquaculture industry (panel of experts).

2. FINANCING – Facilitated access to capital and agricultural funding.

Federal Initiatives
The federal government has:
- Eligibility for CARD funding for aquaculture.
- Made investment Capital Programs readily available to industry.
- Committed to providing funding (grants, loans) to establish new operations.

Provincial Initiatives
The provincial government has:
- Made Investment Capital Programs readily available to industry.
- Committed to providing funding (grants? loans?) to establish new operations.

3. MARKETING – Development and promotion of brand image to support enhanced consumption and integrity of aquaculture products, including traceability. Market research.

Federal Initiatives

The federal government has:

- Led the development of national standards for use of a "Canada logo" regarding environmental sustainability, food safety, and animal welfare (humane treatment), consistent with international standards (participation by province, industry and others).
- Produced a 'MADE IN CANADA' branding that is recognizable as a world-class product.
- Implemented campaigns to promote higher consumption of aquaculture products.

Provincial Initiatives

The provincial government has:

- Developed a traceability system back to cage.

Industry Initiatives

The industry has:

- Conducted market research that has identified routes for diversification.
- Developed and implemented an intense marketing program for various / individual cultured species.

4. ENVIRONMENTAL SUSTAINABILITY – Enhanced sustainability of aquaculture

Federal Initiatives

The federal government has:

- Imposed pollution restrictions consistent with other food growers.
- Investment and security of investment: Science-based environmental performance standards have been developed for aquaculture, which allow for site evaluation and expansion based on all area user information.
- Advanced R&D to the point where there is ample data and technology to show that the industry is sustainable.
- Developed Canadian EA class screening for new aquaculture development.
- Adopted a quality management / certification system that meets or exceeds international accepted standards.
- Developed carrying capacity models for marine and freshwater cage culture.

Provincial Initiatives

The provincial government has:

- Clear understanding of the interaction and impact of escaped farmed fish on wild fish populations.
- Developed an effective reporting and monitoring program for water quality.
- Implemented an effective planning and approval process that is open and transparent.
- A minimum requirement for waste disposal and management under Nutrient Management Act.
- Required Certificate of Approval for all aquaculture operations.
- Developed an escape-proof cage.

Industry Initiatives

The industry has:

- Developed cage technology that has almost eliminated the risk of escapement from cage farms.
- Used plant material food.
- High-security, economically feasible recirculation technology readily available to industry allowing culture of any species with no risk.
- Developed feed technology that has reduced the reliance on marine capture fish.
- Developed more efficient production methods (i.e. low energy and materials per unit of seafood)

- Developed national codes of practice for environmental sustainability that are recognized by governments.
- First Nation cage culture became licensed and provides environmental monitoring.
- Became ISO registered.
- Developed containment strategies that have virtually eliminated escapes.
- Implemented codes of practice.

Other Initiatives

Other groups have:

- Created an effective wastewater treatment system for large cage culture systems.
- Great Lakes Fisheries Commission and partners endorse that environmental concerns have been addressed.

5. POLICY AND REGULATORY – Harmonization / co-ordination / streamlining of more appropriate and specific policies, regulations and standards for aquaculture.

Federal Initiatives

The federal government has:

- Ensured that the lead responsibility for supporting the aquaculture sector / industry was vested with Agriculture Canada.
- Created a coordinated process with province for review of aquaculture sites.
- Implemented a National Aquatic Animal Health Program (NAAHP) that has dramatically reduced disease issues.
- Recognized and increased the role of AAFC.
- Streamlined the therapeutant approval process for aquaculture and reduced the time for approval of new therapeutants.
- Policies updated and integrated between agencies.
- Resolved Native land claims.
- Successfully negotiated land claim settlements with First Nations.
- Resolved land claim issues (with First Nations) in areas for aquaculture.
- One department responsible for aquaculture.
- Recognized industry-developed codes of practice through ties to legislation. : Auditing, inspections, tiered regulatory requirements, accreditation, and 3rd party verification.
- Developed a federal instrument that provides approvals for aquaculture operations that eliminate conflicts with Section 36(3) of the Fisheries Act. It includes relevant monitoring program to detect environmental effects (EC, DFO).

Provincial Initiatives

The provincial government has:

- MOE developed standards for all land-based fish farms in the province administered under a different instrument specific to aquaculture.
- Recognized industry-developed codes of practice tied to legislation: auditing, inspections, tiered regulatory requirements, accreditation, 3rd party verification.
- Changed MMAH (Municipal Act). Municipalities became entrepreneurs to operate aquaculture; created jobs.
- Policies updated and integrated between agencies.
- Processed all farmed fish in provincially approved fish processing plants.
- Developed standards for fish manure application under the Nutrient Management Act (OMAFRA, MOE).
- MOE MNDM Agriculture: must find a balance between environmental protection and development.
- Vested OMAF with the responsibility for lead in aquaculture – support. Coordinate enforcement with MNR & OMEE.
- Created a coordinated process with federal government for review of aquaculture sites.
- One Department responsible for aquaculture.

6. R&D AND TECHNOLOGY TRANSFER – In support of enhanced industry productivity and environmental sustainability.

Federal Initiatives
The federal government has:

- Supported / funded research & development of technology in the areas of: environmental sustainability, food safety, animal welfare, new products, and by-products.

Provincial Initiatives
The provincial government has:

- Supported, funded, communicated, and implemented research & development of technology in the areas of: environmental sustainability, food safety, animal welfare, new products, and by-products.
- OMAFRA extension activities to facilitate training of fish farmers on codes of practice and farm operations.

Industry Initiatives
The industry has:

- Researched and developed alternative uses for fish waste products.
- Developed offshore technology to minimize water user conflicts (e.g. w/cottagers).
- Used offshore platforms in Lake Huron / Lake Superior for aquaculture.
- Ensured that all fish farm operators / owners have a basic level of training on farm practices and recommended codes.
- Developed and adopted comprehensive codes of practice in an open and consultative manner. This includes environmental, animal welfare, business practices, and stakeholder relations.
- Supported, funded and communicated research and development of technology in areas of: environmental sustainability, food safety, aquaculture welfare, new products, and by-products.

Other Initiatives
Other groups have:

- Developed fast growing salmonid strain.
- Universities and colleges offered accredited training for operation of fish farms: includes requirements for environmental sustainability.
- Developed disease resistant strain.

7. FOOD SAFETY – Development of systems to provide consumer and regulatory assurances re food safety.

Federal Initiatives
The federal government has:

- Recognized and provided audit for voluntary industry-implemented HACCP-based (food safety) program.

Industry Initiatives
The industry has:

- HACCP - recognized need for development and audit by government.
- Led development of government supported and recognized food safety program that was implemented by 100% of aquaculture farms.
- Adopted a comprehensive on-farm food safety program for farmed fish.
- Certified fish farmers in the use of livestock medicines and chemotheraputants.

8. PARTNERSHIPS – Enhanced partnership and cooperation among stakeholders in the sector.

Federal Initiatives
The federal government has:

- Recognized that aquaculture is a joint mandate / venture with province.

Provincial Initiatives
The provincial government has:
- Recognized aquaculture is a joint venture with the federal government.
- Shared same vision for aquaculture development as federal government.

Industry Initiatives
The industry has:
- Developed a common voice for organizations.
- Developed partnerships with First Nations.

Other Initiatives
Other groups have:
- Commercial fishers have developed partnerships with aquaculture firms to utilize fishery by-catch (as fish feed) and jointly market product.

9. LAND USE AND PLANNING – Planned and coordinated approach to resource use.

Federal Initiatives
The federal government has:
- DFO developed critical habitat mapping (GIS) in waters generally suitable for aquaculture.
- First Nations land claims have been resolved in areas suitable for aquaculture.
- Studied and discovered new site locations.

Provincial Initiatives
The provincial government has:
- First Nations land claims have been resolved in areas suitable for aquaculture.
- Zoning of areas for aquaculture; federal / provincial database of areas defining uses, environmentally sensitive areas, etc.
- (MNR, MOE, OMAFRA) allowed / implemented ownership of aquaculture sites (or long-term lease) by industry, tied to environmental performance standards and closure plans.
- Developed, in co-operation with federal government, comprehensive GIS mapping covering all land and water
- Implemented coastal zone management systems involving all stakeholders (all provinces).

ANNEX III. LIST OF PARTICIPANTS - ONTARIO WORKSHOP

Industry and Other Stakeholders

NAME	AFFILIATION
Ab Boogerman	Ontario Aquaculture Association
Alvis Fogels	Ontario Aquaculture Association
Claudette Pintwala	Georgian Bay Association
Dale Jordison	Ontario Aquaculture Association
Dan Glofcheskie	Ontario Aquaculture Association
Douglas McGrogan	Ontario Aquaculture Association
Gary Chapman	Ontario Aquaculture Association
Geoff Cole	Cole-Munro Foods Group Inc.
Gord Cole	Aqua-Cage Fisheries Ltd.
Jan Linquist	NAR Environmental Consultants Inc.
Jim Taylor	Ontario Aquaculture Association
Karl H. Dickob	Ontario Aquaculture Association
Karl Schiefer	Georgian Bay Association
Mary Nelder	LaCloche Manitoluin Business Assistance Corp.
Rich Moccia	Guelph University
Robert Devin	Ontario Aquaculture Association
Tim Hodkinson	Ontario Aquaculture Association

Government Stakeholders

NAME	AFFILIATION
Steve Naylor	Ontario Ministry of Agriculture, Food and Rural Affairs
John Hoeve	Canadian Food Inspection Agency
Geeta Kissoon	Canadian Food Inspection Agency
Mary Thorburn	Ontario Ministry of Environment and Energy
Rod Penney	Ontario Ministry of Natural Resources
Mark Muschett	Ontario Ministry of Natural Resources
David Reid	Ontario Ministry of Natural Resources
Quentin Day	Ontario Ministry of Natural Resources
Tom Johnston	Department of Fisheries and Oceans
Nardia Ali	Environment Canada
Gwen McBride	Ontario Ministry of Agriculture, Food and Rural Affairs
Dawn Pate	Ontario Ministry of Agriculture, Food and Rural Affairs
Rod Sein	Ontario Ministry of Environment and Energy
Mark Del Monte	Industry Canada
Wayne Hyatt	Department of Fisheries and Oceans
Vic Cairns	Department of Fisheries and Oceans
Paul Blanchfield	Department of Fisheries and Oceans
Rick McLean	Department of Fisheries and Oceans